

## PATENT ABSTRACTS OF JAPAN

(11)Publication number : 2000-236576

(43)Date of publication of application : 29.08.2000

(51)Int.Cl.

H04Q 7/38  
G06F 13/00  
H04M 11/08  
H04M 15/00

(21)Application number : 11-034356

(71)Applicant : DENSO CORP

(22)Date of filing : 12.02.1999

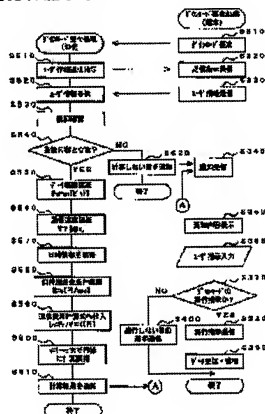
(72)Inventor : MIYAZAKI MITSUMASA

## (54) DATA DISTRIBUTION SYSTEM AND INFORMATION DISTRIBUTION CENTER

## (57)Abstract:

**PROBLEM TO BE SOLVED:** To allow a user of a mobile communication terminal to recognize a communication cost before actual downloading when the mobile communication terminal downloads data from a information distribution center.

**SOLUTION:** An information distribution center recognizes a data capacity  $P_n$  of requested data, a communication speed  $V$  of a communication line, and date time dependent charging condition  $K$  on the basis of date time information when downloading is executed (S550, S560, S580) in response to a download request from a mobile communication terminal, substitutes them to a communication cost calculation equation [ $L_n = P_n / V \times K$ ] to calculate the communication cost  $L_n$ . Moreover, the communication speed and the date time dependent charging condition  $K$  depend on a contract condition of each user with a telephone company registered as user information. Then the calculation result is informed to the mobile communication terminal (S610). The mobile communication terminal receives the notice of the calculation result (S340), and displays the communication cost for data making the download request.



**\* NOTICES \***

JPO and INPIT are not responsible for any damages caused by the use of this translation.

- 1.This document has been translated by computer. So the translation may not reflect the original precisely.
- 2.\*\*\* shows the word which can not be translated.
- 3.In the drawings, any words are not translated.

---

**CLAIMS**

[Claim(s)]

[Claim 1]An information distribution centre and a mobile communication terminal are connected via a communication line by which two-way communication in radio system is possible, and connection time based fee collection is made, In a data distribution system to distribute data for distribution according to a distribution request from said mobile communication terminal from said information distribution centre said information distribution centre, Based on a specific system of said communication line, communication cost required when distributing data for distribution according to said distribution request to said mobile communication terminal of distribution request origin is calculated, A data distribution system which can notify the calculated communication cost concerned to a mobile communication terminal of said distribution request origin in advance of distribution of said data for distribution, and is characterized by providing said mobile communication terminal with an informing means which reports communication cost notified from said information distribution centre to a user on the other hand.

[Claim 2]A data distribution system when a supply price is set to said distributes data itself in said data distribution system according to claim 1, wherein said information distribution centre notifies the supply price to said mobile communication terminal with said communication cost.

[Claim 3]In said data distribution system according to claim 1 or 2, said information distribution centre, A data distribution system having individual conditions applied about said connection time based fee collection uploaded when using said communication line, and calculating said communication cost from said mobile communication terminal based on the condition.

[Claim 4]A data distribution system, wherein a mobile is equipped with said mobile communication terminal in said data distribution system according to any one of claims 1 to 3.

[Claim 5]Data for distribution which said mobile communication terminal is a navigation device in which a map display is possible at least, and is distributed from said information center in said data distribution system according to claim 4, A data distribution system being map data for the mobile communication terminal concerned to use for a map display.

[Claim 6]A data distribution system, wherein data for distribution distributed from said information center in said data distribution system according to any one of claims 1 to 5 is an application program for processing performed with the mobile communication terminal concerned.

[Claim 7]In an information distribution centre which is connected with a mobile communication terminal via a communication line by which two-way communication in radio system is possible, and connection time based fee collection is made, and distributes data for distribution according to a distribution request from said mobile communication terminal, Based on a specific system of said communication line, communication cost required when distributing data for distribution according to said distribution request to said mobile communication terminal of distribution request origin is calculated, An information distribution centre notifying the calculated communication cost concerned to a mobile communication terminal of said distribution request origin in advance of distribution of said data for distribution.

[Claim 8]An information distribution centre notifying the supply price to said mobile communication terminal with said communication cost in said information distribution centre according to claim 7 when a supply price is set to said distributes data itself.

[Claim 9]An information distribution centre having individual conditions applied about said connection time based fee fee collection uploaded when using said communication line, and calculating said communication cost from said mobile communication terminal based on the condition in said information distribution centre according to claim 7 or 8.

[Claim 10]As opposed to said mobile communication terminal which was carried in a mobile and constituted as a navigation device in which a map display is possible at least in said information distribution centre according to any one of claims 7 to 9, An information distribution centre distributing map data for the mobile communication terminal concerned to use for a map display as said data for distribution.

[Claim 11]An information distribution centre distributing an application program for processing performed with the mobile communication terminal concerned as said data for distribution to said mobile communication terminal in said information distribution centre according to any one of claims 7 to 10.

---

[Translation done.]

## \* NOTICES \*

JPO and INPIT are not responsible for any damages caused by the use of this translation.

- 1.This document has been translated by computer. So the translation may not reflect the original precisely.
- 2.\*\*\* shows the word which can not be translated.
- 3.In the drawings, any words are not translated.

---

**DETAILED DESCRIPTION**

[Detailed Description of the Invention]

[0001]

[Field of the Invention]This invention is used for the system which distributes data from an information distribution centre, and its data distribution system to mobile communication terminals, such as a communication type navigation system, and relates to an effective information distribution centre, for example to them.

[0002]

[Description of the Prior Art]In the conventional, for example, communication type, car navigation device, it connects with information-and-telecommunications networks, such as the Internet, for example via a cellular phone, a car telephone, etc., and the data which carried out the distribution request to the information distribution centre can be acquired now (download). Considering the point that it is connectable with an information distribution centre by connecting a cellular phone etc., the existing information tool of portability, such as a notebook computer and PDA, also comprises uniting with a cellular phone etc. as this "mobile communication terminal", for example. Conversely, what is considered as telephone should just give the function which can download data. That is, it is contained in the mobile communication terminal made into subject here if a communication function and a download function occur.

[0003]When such a mobile communication terminal downloads the data distributed from the information distribution centre, payment must usually be made also about the communication cost to the supply price of the data of a distribution object itself required when downloading in addition for paying. What is necessary is to be able to judge whether as a user, the price is referred to and is purchased, and just to direct download, in purchasing since it can know before download about the supply price mentioned above.

[0004]

[Problem(s) to be Solved by the Invention]However, about communication cost, if it is not after actually downloading, the user itself cannot grasp the expense. Therefore, after downloading, communication cost is told, and being bewildered by being big-ticket expense unexpectedly is also considered. That is, it is because it will become indeed big-ticket [ communication cost ] if the data volume distributed from an information distribution centre increases in being a communication line by which connection time based fee collection is made. Overall cost not only including the supply price of data but a part to require for downloading the data poses a problem substantially in respect of the expense at the time of a user considering data purchase. Although selection that it will not download if it understands how much the overall cost becomes beforehand can also be performed, in the situation which only the supply price of data understands, communication cost must be expected by itself.

[0005]Thus, about communication cost, that communication cost is a large sum poses a problem in the actual condition that self diagnosis is required, compared with the case where a general wire communication line is used in the case of the mobile communication terminal which uses wireless communications lines especially. For example, when it is assumed that communication cost is proportional to data volume, if the data volume of distributes data doubles, though natural, communication cost will also be twice, but in the case of high wireless communications lines, the unit price (for example, expense per second) of communication cost becomes remarkable [ a problem ] relatively here. If 30,000 yen changed to 60,000 yen when the wireless

communications lines assumed that the 10 times as many expense starts temporarily were used with that whose total amount of the communication cost in January is about 3000 yen having doubled, and it having changed to about 6000 yen, when having said concretely, and the wired telephone line was used, for example, there is a big difference.

[0006] Since the feeling of as opposed to [ 10 times are a hypothetical talk and ] the amount of money mentioned above, of course also has individual difference, it cannot generally say, but the impression that the communication cost at the time of using wireless communications lines as the present common user's feeling is a large sum relatively is held. Therefore, about the communication cost in decision making of the user at the time of data purchase, the direction at the time of using big-ticket wireless communications lines relatively is considered that weight is far high compared with the case where a cheap wire communication line is used relatively.

[0007] When communication cost is changed with the difference in the wireless communications lines to be used, and the utilization-time belt, the communication cost at the time of downloading the same data also changes with the difference in a utilization-time belt, differences among the subscription conditions for every user, etc. Therefore, though communication cost when others download the same data can be known, there are many situations where the communication cost is inapplicable as it is in the case of.

[0008] Therefore, since it may be rough before download of data, construction of the system which a user can know about needed communication cost is expected. In the data distribution system which can download the data which is made in order that this invention may solve the problem mentioned above, and is distributed from an information distribution centre with a mobile communication terminal. It aims at the user of a mobile communication terminal enabling it to get to know communication cost before actual download.

[0009]

[The means for solving a technical problem and an effect of the invention] To achieve the above objects, the made data distribution system according to claim 1, An information distribution centre and a mobile communication terminal are connected and constituted via the communication line by which the two-way communication in radio system is possible, and connection time based fee collection is made, and moreover, it is constituted so that the data for distribution according to the distribution request from a mobile communication terminal may be distributed from an information distribution centre.

[0010] And in an information distribution centre, based on a specific system of a communication line, when distributing data for distribution according to a distribution request to a mobile communication terminal of distribution request origin, required communication cost is calculated. The calculated communication cost is notified to a mobile communication terminal of distribution request origin in advance of distribution of data for distribution. On the other hand, an informing means of a mobile communication terminal reports communication cost notified from an information distribution centre to a user. Therefore, a user of a mobile communication terminal can know the communication cost, before actually downloading data for distribution which carried out the distribution request.

[0011] Thus, if it understands before communication cost's downloading, it can be judged whether the communication cost is taken into consideration and data is actually downloaded. That is, communication cost notified, for example applies with a frame which he considered, and separates, and when big-ticket, selection of canceling the download of data itself can also be performed.

[0012] As a procedure of resulting [ from a notice of communication cost ] in actual download, For example, when a user of a mobile communication terminal does predetermined download instruction operation, that uploads from a mobile communication terminal to an information distribution centre, and it is possible that an information distribution centre actually distributes data for distribution according to it, moreover -- as the method of a volition display of a user when not downloading -- predetermined download nonfulfilment instructing operation -- what is necessary is just to carry out or predetermined time -- composition it will be judged that does not perform download automatically if nothing is operated may be adopted.

[0013] When a supply price is set to the distributes data itself, it is good to notify the supply price to a mobile communication terminal with communication cost from an information

distribution centre. When a user considers data purchase, communication cost and overall cost including a supply price of data are taken into consideration. Therefore, more suitable judgment can be performed if a user of a mobile communication terminal can also grasp a data supply price before actual download in addition to communication cost. That is, although it senses that a supply price of data is a little high, if cheaper than communication cost thought, it can also decide on data purchase as a result of a synthetic cost analysis, for example. On the contrary, although a supply price of data is cheap, if it is a large sum rather than communication cost thought, judgment of not carrying out data purchase can also be performed as a result of a synthetic cost analysis.

[0014]By the way, although a communication line has adopted connection time based fee collection, the connection time based fee accounting system is not uniform, either, and it is common that there are many kinds. For example, considering a portable telephone system, a communication cost system changes also with differences in a telecommunications company where a user joins, and even if it is the still more nearly same telecommunications company, a communication cost system changes with differences among subscription conditions. For example, it is specifying a day of the week and time which become high [ a discount rate ], or specifying a communication method and transmission speed. Therefore, if it carries out from a viewpoint of a notice of more exact communication cost, as shown in claim 3, an information distribution centre, It is preferred to have individual conditions applied about connection time based fee collection uploaded, when using a communication line, and to calculate communication cost from a mobile communication terminal, based on the condition. If it uploads with a demand of data distribution, it is sufficient for this.

[0015]As a mobile communication terminal in a data distribution system explained above, it may be carried in vehicles which are mobiles as known, for example as a communication type car navigation device. In this case, although it will connect with an information distribution centre, for example via an existing cellular phone, a car telephone, etc., it may be the navigation device which contained this communication function. It may be a terminal which human being carries. An existing information tool of portability, such as a notebook computer which contained a communication function, and PDA, is also employable as a mobile communication terminal.

[0016]Although many things are considered as data for distribution, as shown in claim 5, when a mobile communication terminal is a navigation device in which a map display is possible at least, it is possible to be map data for the mobile communication terminal to use for a map display. In the case of a navigation device, it is possible to download, when a national map is not prepared beforehand, for example, but only a map of a frequently-used area is prepared and it is needed about the other map data. Since the map data itself may be updated, there is also a utilizing method of downloading map data after updating. As shown in claim 6 besides this, downloading various application programs for processing performed with a mobile communication terminal is also considered. For example, a program of users' pitched-against each other type game or a stand-alone type game, etc. are mentioned.

[0017]An information distribution centre used for such a system on the other hand can be constituted as follows. For example, an information distribution centre shown in claim 7 is connected with a mobile communication terminal via a communication line by which two-way communication in radio system is possible, and connection time based fee collection is made. In an information distribution centre which distributes data for distribution according to a distribution request from a mobile communication terminal, Based on a specific system of a communication line, when distributing data for distribution according to a distribution request to a mobile communication terminal of distribution request origin, required communication cost is calculated, and the calculated communication cost concerned is notified to a mobile communication terminal of distribution request origin in advance of distribution of data for distribution.

[0018]In this case, as shown in claim 8, when a supply price is set to the distributes data itself, it may be made to notify that supply price to a mobile communication terminal with communication cost. As shown in claim 9, from a mobile communication terminal, when using a communication line, I have individual conditions applied about connection time based fee collection uploaded, and communication cost may be calculated based on the condition. As shown in claim 10, it is

carried in a mobile and a mobile communication terminal constituted as a navigation device in which a map display is possible at least is received, It may be made to distribute map data for the mobile communication terminal concerned to use for a map display as data for distribution, and may be made to distribute various application programs for processing performed with a mobile communication terminal as data for distribution, as shown in claim 11.

[0019] Since it was under explanation as a data distribution system mentioned above and an operation and an effect of these information distribution centres are described, it does not repeat here. Of course, if it faces realizing a data distribution system of this invention, and is not restricted only to this information distribution centre and its purpose, operation, and effect are made common, it cannot be overemphasized that a thing using a different device from an above-mentioned device is also included.

[0020]

[Embodiment of the Invention] Hereafter, the example to which this invention was applied is described using a drawing. As long as an embodiment of the invention belongs to the technical scope of this invention, without being limited to the following example in any way, it cannot be overemphasized that various gestalten can be taken.

[0021] With reference to drawing 1, the data distribution system of an example and the composition of the telephone entrepreneur side equipment to be used are explained. In drawing 1, the mobile communication terminal 1 and the information distribution centre 4 are the data distribution systems of this example, and the base station 2 and the public network 3 are the telephone entrepreneur side equipment. The base station 2, the public network 3, and the information distribution centre 4 and the public network 3 are connected with the cable, and, on the other hand, the mobile communication terminal 1 is connected to the public network 3 by performing radio between the base stations 2. Therefore, two-way communication is possible for the mobile communication terminal 1 and the information distribution centre 4 via such telephone entrepreneur side equipment. The system (meter-rate system accounting system) by which what is called meter-rate based fee collection is made is built by using this telephone entrepreneur side equipment.

[0022] First, the information distribution centre 4 is explained. As shown in drawing 1, the information distribution centre 4 is provided with the communication apparatus 41, the user authentication verifying means 42, the communication cost calculating means 43, the data download means 44, the data retransmission means 45, and the database DB. Among the composition of the information distribution centre 4 in drawing 1, except communication apparatus 41, the function of the information distribution centre 4 is expressed and it realizes in hard in the computer system of the common knowledge which consists of a computer, memory storage, etc. Various data is stored in the database DB as data for distribution. For example, it is map data for the navigation device which is the mobile communication terminal 1 to use for a map display. In the case of a navigation device, a national map is not prepared beforehand, for example, but only the map of the frequently-used area is prepared, and the utilizing method of downloading when needed about the other map data is assumed. Since the map data itself may be updated, there is the necessity of downloading the map data after updating. Of course, it may be an application program of the versatility besides this.

[0023] In this system, communication cost is notified only within the case where data is downloaded to the mobile communication terminal 1 in which User Information registration is carried out to beforehand to the information distribution centre 4. Therefore, when a download request occurs from the mobile communication terminal 1, the user authentication verifying means 42 has User Information transmitted, and checks whether the transmitted User Information agrees with the contents registered into the database DB.

[0024] The communication cost calculating means 43 calculates the communication cost required when data with a download request is downloaded to the mobile communication terminal 1 of a requiring agency, when an attestation check is completed in the user authentication verifying means 42. On the occasion of this calculation, a data volume, transmission speed, or utilization time term (utilization-time belt) etc. are referred to. And the calculated communication cost is notified to the mobile communication terminal 1 of a requiring agency via the communication apparatus 41.

[0025]The data download means 44 performs download, when a check that data may actually be downloaded from the mobile communication terminal 1 is able to be taken after being calculated by the communication cost calculating means 43 and notifying communication cost to the mobile communication terminal 1. Predetermined error detection information is added in that case.

[0026]The data retransmission means 45 resends data, when there is a data retransmission demand from the mobile communication terminal 1. Next, the mobile communication terminal 1 is explained. As shown in drawing 2, the mobile communication terminal 1 of this example is provided with the following.

The position transducer 12 which is constituted as a communication type navigation system carried in vehicles, and detects the current position of vehicles.

In order to collect various road traffic information, receive an FM-broadcasting signal via the radio aerial 16a, or, VICS receiver 16 which receives the radio wave beacon signal from a fixed station and optical beacon signal for VICS (Vehicle Information and Communication System: vehicle information and communication system) service which have been arranged near the road. The communication apparatus 18 which performs data communications between the information distribution centres 4 via a radio telephone network.

The remote control sensor 20 which inputs the signal from the remote control (not shown) with which the operation switch group for a user to input various instructions was provided, The map data input machine 22, the external memory 24, and the display 26 for a display screen being embedded at an instrument panel (instrument panel), and performing the various displays of a map display screen, a TV picture besides a display, etc. of a speedometer, a tachometer, etc., The Navi control circuit 30 which performs various processing according to the various instructions inputted via the remote control sensor 20 by performing control of the position transducer 12, VICS receiver 16, the communication apparatus 18, the remote control sensor 20, the external memory 24, and the display 26.

[0027]Here, the position transducer 12 is provided with the following.

GPS (Global Positioning System). GPS receiver 12a which receives the transmit radio wave from the artificial satellite of \*\* via a GPS antenna, and detects the position of vehicles, a direction, speed, etc.

The gyroscope 12b which detects the size of the rotational movement added to vehicles. The speed sensor 12c for consisting of a speed sensor, wheel sensors, etc. and detecting the mileage of vehicles.

The geomagnetism sensor 12d for detecting a direction absolutely based on geomagnetism. And 12a-12d, such as these each sensor, since each has an error from which character differs, it is constituted so that it may be used complementing mutually. The sensor etc. which accumulate the steering angle of the vehicles which may constitute only using 12a-the parts in 12d of the sensor etc. which were mentioned above depending on accuracy, and are obtained from the rotational difference of a right-and-left steering wheel, etc., and search for a direction may be used.

[0028]The map data input machine 22 is a device for inputting the various data containing what is called data for map matching, the map data, and the facility data mentioned later for the precision improvement of a detecting position. As a storage, although it is common to use CD-ROM from the data volume, other media, such as DVD and a memory card, may be used, for example. Map data connects between the nodes of plurality, such as a crossing, with a link, and constitutes a map. The link information which consists of x of the specific number (link ID) which specifies a link, the link length which shows the length of a link, the start edge of a link, and a termination, a y-coordinate, the width of street of a link, and data of a road class (what shows the traffic information of a toll road etc.) is memorized to each link.

[0029]The display 26 is a color display device and the mark which shows the present location of the vehicles detected with the position transducer 12, the map data inputted from the map data input machine 22, and attached data further displayed on a map, such as a path guide, a name, and a mark, can be displayed on the screen in piles. Although this display 26 is equivalent to the "informing means" of this invention and it mentions later in detail, the information, including communication cost etc., transmitted from the information distribution centre 4 can also be



displayed.

[0030] In addition -- the mobile communication terminal 1 of this example passes a remote control terminal (the following "remote control" is called) -- the position of the remote control sensor 20 to the destination -- and, If specification (namely, specification of a shunt) of specific courses, such as a highway, is inputted if needed, it also has what is called a course guiding function that chooses automatically the optimal course from a its present location to the destination, and forms and displays a path guide. As for such a technique of setting up the optimal course automatically, techniques, such as a Dijkstra method, are known. Since it is not characterizing portions with this invention main about setting out and a display of this path guide, detailed explanation is omitted.

[0031] On the other hand, the external memory 24 functioned as a memory part at the time of performing navigation related processing, and is provided with VRAM etc. It is preferred to adopt as a VRAM the thing in which rapid access is possible. The control circuit 30 is constituted centering on the microcomputer of the common knowledge which consists of CPU, a ROM, and RAM. The current position of the vehicles based on each detecting signal from the position transducer 12, the map near [ which was read from CD-ROM etc. via the map data input machine 22 ] a current position, The various traffic information etc. which were acquired via VICS receiver 16 and the communication apparatus 18 are displayed on a display screen, or the display control process etc. which switch suitably the information which should be displayed on a display screen are performed according to change of various situations or environment.

[0032] The contents of processing performed in this data distribution system explained above are explained with reference to drawing 3 - drawing 6. The processing for registering User Information first is explained. It restricts, when downloading data in this system to the mobile communication terminal 1 in which User Information registration is carried out to beforehand to the information distribution centre 4, as mentioned above, and communication cost is notified. Therefore, in order to use the function, it is necessary to register User Information into the information distribution centre 4 side beforehand.

[0033] The contents of registration are following \*\*--\*\* as shown in drawing 3.

\*\* Number peculiar to user's name \*\* model -- When the communication function is built in the navigation device itself which constitutes the mobile communication terminal 1, it becomes a number peculiar to the model of the navigation device itself (that is, when the communication apparatus 18 of drawing 2 is a built-in type). On the other hand, a navigation device serves as a number peculiar to the model of that cellular phone and car telephone, when using the cellular phone and car telephone of a different body as this communication apparatus 18.

[0034] \*\* Password -- A user can set this up individually.

\*\* Telephone number

\*\* Telecommunications company subscription conditions -- It is subscription conditions with the telecommunications company where the user itself has joined, and since it is a meter-rate based accounting system fundamentally, the fee per unit time (for example, 1 second) changes with a day of the week or time zones, for example, when Saturday and Sunday of a fee are cheaper than Monday to Friday, a midnight extra charge is still cheaper -- like -- they are conditions. Since hour corresponding changes also with transmission speed, it is made into the contents of registration also about a communication method and a communication method.

[0035] Then, the registration procedure of User Information is explained with reference to drawing 4. Drawing 4 is a flow chart which shows the User Information registration processing performed with the mobile communication terminal 1. A start of this processing will perform registration according to the user's input about the name, the machine type number, the password, telephone number, and telecommunications company subscription conditions which are User Information, as shown in S110 (S expresses a step)-S150. The user can input these User Information by operating a remote control.

[0036] And since these-inputted User Information is displayed on the display 26 for content confirmation, a user operates a remote control and inputs the correction of the contents. As the mobile communication terminal 1, it judges whether the contents of registration are the right based on the input (S160), and if it has mistaken (S160:NO), it will return to S110 and will redo from name registration processing. On the other hand, if the contents are right (S160:YES), in

order to save the time and effort which inputs the same User Information from next time, User Information is recorded on the external memory 24.

[0037]Next, it connects with the information distribution centre 4 (S180). About this connection processing, when the mobile communication terminal 1 may be made to carry out automatically or a user points to connection with the information distribution centre 4 with the remote control after processing by S170 was completed, that indicating input may be performed as a trigger.

[0038]If connection is possible with the information distribution centre 4, User Information recorded on the external memory 24 in S170 will be transmitted to the information distribution centre 4 (S190). The information distribution centre 4 will perform collation with the machine type number and password which the user used the document etc. and registered to the information distribution centre 4 a priori, if User Information transmitted from the mobile communication terminal 1 is received. And as a result of the collation, if the transmitted contents of a user are right, User Information will be registered into the database DB (refer to drawing 1), and it transmits having carried out the registration permission to the mobile communication terminal 1. On the other hand, if the transmitted contents of a user are not right, it transmits not permitting registration to the mobile communication terminal 1.

[0039]therefore — the case where (S200:YES) and the purport that end normally and a registration permission is not carried out are received when having returned to the flow chart of drawing 4 and having carried out the registration permission from the information distribution centre 4 is received — (S200:NO) — abnormal termination is carried out. A registration permission is carried out, and as for all in the state where abnormal termination was carried out without carrying out a registration permission, when normal termination is carried out, it is preferred to display on the display 26, or to turn on and blink LED etc. which are not illustrated so that a user may understand the state.

[0040]What is necessary is just to correct according to processing of drawing 4, when the subscription conditions to a telecommunications company, etc. change, for example. Next, download is required of the information distribution centre 4 from the mobile communication terminal 1, and processing until the data according to the demand downloads from the information distribution centre 4 to the mobile communication terminal 1 is explained with reference to drawing 5 and 6.

[0041]First, in the download request processing started based on the download request directions inputted by a user's remote control operation, in S310, it connects with the information distribution centre 4, and a download request is carried out. This demand is performed by specifying predetermined data. Of course, two or more data can also be specified. Therefore, the list display of the data downloadable to the display 26 of the mobile communication terminal 1, for example will be carried out, and the download request about the data specified by the user from the inside will be performed. The time which is going to perform download can also be further specified now. That is, if time specification is not carried out and download is performed and specified immediately, download will be performed at the time of the designated date.

[0042]On the other hand, if the download request from the mobile communication terminal 1 occurs in this way, in the information distribution centre 4 side, by receiving the requirement signal, download acceptance processing is started and transmission of User Information is directed to the mobile communication terminal 1 which has transmitted the download request (S510). For this reason, in the mobile communication terminal 1 side, after a download request, if the transmission instruction of User Information transmitted from the information distribution centre 4 is received (S320), it will shift to S330 and User Information recorded on the external memory 24 in S170 of drawing 4 will be transmitted to the information distribution centre 4 (S330).

[0043]When User Information is transmitted to the information distribution centre 4 from the mobile communication terminal 1 in this way, in the information distribution centre 4 side. Processing as the user authentication verifying means 42 in drawing 1 in which receive this User Information (S520) and it is judged whether it is in agreement with the contents by which that received User Information is registered into the database DB is performed (S530).

[0044]When User Information received from the mobile communication terminal 1 has agreed

with the contents of registration, after performing (S540:YES) and outline computation of the communication cost shown in S550-S600 and notifying the calculation result to the mobile communication terminal 1 in S610, download acceptance processing is ended. On the other hand, when User Information has not agreed with the contents of registration, this processing is ended only by giving the notice of a purport which shifts to (S540:NO) and S620 and does not perform calculation of communication cost to the mobile communication terminal 1.

[0045] Then, the computation of the communication cost of S550-S600 is explained. The data volume  $P_n$  of the data which S550 required is recognized, and the transmission speed  $V$  is recognized in S560 continuing. This transmission speed  $V$  is acquired out of User Information registered into the database DB. Then, the date information which performs download is acquired (S570). It will also be acquired if this has the time of the designated date of download during the download request transmitted from the mobile communication terminal 1. If there is nothing, the anticipation time at the time of the predetermined exchange between the mobile communication terminals 1 explained below being completed based on the current time obtained from the clock function with which the information distribution centre 4 is provided, and performing download immediately will be acquired.

[0046] In S580, the applicable fee collection conditions  $K$  classified by time are recognized based on the date information acquired by S570. This fee collection condition  $K$  classified by time is acquired out of User Information registered into the database DB. And in S590 continuing, the communication cost  $L_n$  is calculated by substituting data volume  $P_n$  recognized in S550, S560, and S580, respectively, the transmission speed  $V$ , and the fee collection conditions  $K$  classified by time for the formula  $[L_n = P_n / V \times K]$  for calculating the communication cost  $L_n$ .

[0047] Supposing there is data by which the download request was carried out to 1-z, the communication cost about each data will be calculated by performing similarly this processing of S550-S590 to  $n=1 \rightarrow z$  (S600). After calculation of the communication cost about each data of S600 is completed, it shifts to S610 and the calculation result is notified to the mobile communication terminal 1.

[0048] On the other hand, in the mobile communication terminal 1, the notice of the calculation result of S610 mentioned above or the notice of the purport of S620 that it does not calculate is received (S340). And the notice content is displayed on the display 26 (S350). The user who looked at this display performs the following operations according to those contents.

[0049] That is, when a calculation result is notified in S610, communication cost is displayed on the display 26 for every data which carried out the download request. Although reference was not made in particular in old explanation, when there is a supply price of the data itself, it transmits to the mobile communication terminal 1 from the information distribution centre 4 also about the supply price, and displays according to the display 26. Therefore, a user chooses data [data / refers to a supply price and a communication price, and ] to make it actually download them. This selection process operates a remote control and is performed.

[0050] On the other hand, when it is reported that it does not calculate in S620, only a supply price is displayed on the display 26 for every data which carried out the download request. Therefore, it does not understand about communication cost. Of course, communication cost may carry out operation of data to make it actually downloading being chosen even if it does not understand, or being made not to perform the download itself.

[0051] In S360, the indicating input from such a user is received, and in being the execution instruction of download, it transmits (S370:YES) and the download execution instruction about selected data to the information distribution centre 4 (S380). And the data transmitted from the information distribution centre 4 after that is received, and it accumulates to the external memory 24 (S390). On the other hand, in being directions of the purport that download is not performed, it transmits (S370:NO) and that to the information distribution centre 4 (S400).

[0052] When directions of the purport that download is not performed from the mobile communication terminal 1 are transmitted, the processing which relates to download there is ended in the information distribution centre 4, but when download execution instruction is transmitted, it shifts to the download executive operation shown in drawing 6. In the download executive operation of drawing 6, it is judged first whether it is download execution time. As mentioned above, when there is specification of the execution time of the download from a user,

it stands by until it becomes at the time of the designated date. On the other hand, since download may be immediately performed when there is no specification of the execution time of download, an affirmative judgment is carried out in these S710, and download is started in S720. Also when the function of the information distribution centre 4 was explained with reference to drawing 1, it stated, but the data download means 44 adds error detection information in the case of this download. That is, in order to check whether all the data which should be transmitted from the information distribution centre 4 has downloaded to the mobile communication terminal 1 side normally, the value of the result of having substituted the data for download (data for distribution) for the unique generating polynomial is attached to the data for download, and it transmits.

[0053]In the mobile communication terminal 1 side which receives this data for download, predetermined error checks in comparison with the result substituted for the same generating polynomial as having used the actually received data in the information distribution centre 4, such as CRC check, are carried out, and that result is transmitted to the information distribution centre 4.

[0054]Therefore, in the information distribution centre 4, after the end of download (S730), the error correction result transmitted from the mobile communication terminal 1 is received, and the existence of an error is judged (S740). By judgment by S740, if there is no error, this download executive operation will be ended as it is. On the other hand, when there is an error, it judges whether data is resent or not, and (S750) and in resending, it returns to S720 and reruns download. In not resending, processing is interrupted (S760) and it ends.

[0055]What is necessary is to ask whether resend, since the data downloaded from the information distribution centre 4 to the mobile communication terminal 1 had an error, and just to judge about the judgment of resending of S750 which lends and is not, according to the answer from the mobile communication terminal 1. That is, in the display 26 of the mobile communication terminal 1, the purport that the data error occurred, and the purport that I want it to point to whether to lend and there to be to resend are displayed. What is necessary is just to answer the information distribution centre 4 according to the indicating input from a user.

[0056]In [ as explained above ] the data distribution system of this example, in the information distribution centre 4, based on the specific system of the communication line which is the telephone entrepreneur side equipment, when distributing the data for download (data for distribution) according to the download request (distribution request) from the mobile communication terminal 1 to the mobile communication terminal 1 of a requiring agency, required communication cost is calculated. The calculated communication cost is notified to the mobile communication terminal 1 of a requiring agency in advance of distribution of the data for download, and is displayed on the display 26. Both the prices (supply price) of data are also displayed in this example.

[0057]Therefore, since the user of the mobile communication terminal 1 can know the communication cost before actually downloading the demanded data for download, he can judge whether the communication cost is taken into consideration and data is actually downloaded. That is, the communication cost notified, for example applies with the frame which he considered, and separates, and when big-ticket, selection of canceling the download of data itself can also be performed.

[0058]When the supply price is set to the data itself, the supply price is also displayed [ both ]. Since communication cost and overall cost including the supply price of data are taken into consideration when a user considers data purchase, if a data supply price can also be grasped before actual download in addition to communication cost, since more suitable judgment as a user can be performed, it is desirable.

[0059]In the system of this example, the individual conditions applied about meter-rate system fee collection are uploaded from the mobile communication terminal 1 to the information distribution centre 4, and communication cost is calculated based on the condition. In the flume which is a communication line which adopts connection time based fee collection, the connection time based fee accounting system is not uniform, and it is common that there are many kinds. Therefore, if based on such individual conditions, it will correspond to the situation for every user, and will depend, and the notice of exact communication cost can be performed.

[0060]As mentioned above, although one example of this invention was described, this invention is not limited to the above-mentioned example, and can take various modes. although predetermined remote control operation was assumed as a volition display of the user when not downloading for example, in the above-mentioned example -- predetermined time -- composition it will be judged that does not perform download automatically if nothing is operated may be adopted.

[0061]It may be a terminal which human being carries besides a communication type navigation device like the example mentioned above as the mobile communication terminal 1 in the data distribution system of this invention. For example, the existing information tool of portability, such as a notebook computer which contained the communication function, and PDA, is also employable as a mobile communication terminal.

[0062]As data for distribution, not only the map data for navigation but downloading various application programs for the processing performed with the mobile communication terminal 1 is considered. For example, the program of users' pitched-against each other type game or a stand-alone type game, etc. are mentioned.

---

[Translation done.]